

Claims

What is claimed is:

1. A ultra-wideband communication method, the method comprising the steps of:

generating a first data frame, constructed to transmit data at a first data rate;

generating a second data frame, constructed to transmit data at a second data rate; and

transmitting both the first and second data frames.
2. The method of claim 1, wherein the first and second data frames each comprise a plurality of time bins, with each time bin capable of receiving an ultra-wideband pulse.
3. The method of claim 1, wherein the first data frame transmits data at a rate that ranges between about one kilobit per second to about five megabits per second.
4. The method of claim 1, wherein the second data frame transmits data at a rate that ranges between about five megabits per second to about one gigabit per second.

5. The method of claim 1, wherein the second data frame transmits data at a rate selected from a group consisting of: a 25 megabit per second rate, a 50 megabit per second rate, a 100 megabit per second rate, a 200 megabit per second rate, a 400 megabit per second rate, a 480 megabit per second rate, a 500 megabit per second rate, and a one gigabit per second rate.

6. The method of claim 1, wherein the first and second data frames each comprise a time duration that may range from about one microsecond to about one millisecond.

7. The method of claim 1, wherein the first and second data frames each comprise a plurality of time bins, with each time bin capable of receiving an ultra-wideband pulse, wherein the ultra-wideband pulse may range in duration from about 10 picoseconds to about one nanosecond.

8. The method of claim 1, wherein a ratio of the first and second data frames may vary.

9. A ultra-wideband communication method, the method comprising the steps of:

means for generating a first data frame, constructed to transmit data at a first data rate;

means for generating a second data frame, constructed to transmit data at a second data rate; and

means for transmitting both the first and second data frames.

10. A computer program product for directing a general purpose digital computer to perform a desired function, the computer program product comprising:

a set of computer readable instructions to generate a first data frame, constructed to transmit data at a first data rate;

a set of computer readable instructions to generate a second data frame, constructed to transmit data at a second data rate; and

a set of computer readable instructions to transmit both the first and second data frames.

11. An ultra-wideband communication device, comprising:

a first transceiver structured to communicate at a first data rate; and

a second transceiver structured to communicate at a second data rate.

12. The ultra-wideband communication device of claim 11, wherein the first data rate transmits data at a rate that ranges between about 1 kilobit per second to about 5 megabits per second.

13. The ultra-wideband communication device of claim 11, wherein the second data rate transmits data at a rate that ranges between about 5 megabits per second to about 1 gigabit per second.

14. The ultra-wideband communication device of claim 11, wherein:
the first transceiver communicates at the first data rate; and
the second transceiver is kept off.

15. The ultra-wideband communication device of claim 11, wherein:
the first transceiver communicates at the first data rate; and
the second transceiver kept off until communication at the second data rate is desired.

16. An ultra-wideband communication network, comprising:
at least two ultra-wideband communication devices, each device structured to transmit and receive data using at least two data rates; and
a master ultra-wideband transceiver structured to communicate with the at least two ultra-wideband communication devices, and structured to direct data through the network selectively using the two data rates.

17. The ultra-wideband communication network of claim 16, wherein each of the two data rates are selected from a group consisting of: one kilobit per second, five megabits per second, 25 megabits per second, 50 megabits per second, 100

megabits per second, 200 megabits per second, 400 megabits per second, 480 megabits per second, 500 megabits per second, and one gigabit per second.

18. The ultra-wideband communication network of claim 16, wherein the master ultra-wideband transceiver chooses one of the two data rates by determining a communication data rate capability of each of the at least two ultra-wideband communication devices.

19. The ultra-wideband communication network of claim 16, wherein each of the at least two ultra-wideband communication devices transmit a plurality of pulses.

20. The ultra-wideband communication network of claim 19, wherein each of the plurality of pulses has duration that ranges from about ten picoseconds to about one millisecond.

21. The ultra-wideband communication network of claim 16, wherein each of the at least two ultra-wideband communication devices transmits a plurality of orthogonal frequency division multiplexing signals.

22. The ultra-wideband communication network of claim 16, wherein each of the at least two ultra-wideband communication devices includes a low data rate transceiver and a high data rate transceiver.

23. An ultra-wideband communication network, comprising:
- an ultra-wideband communication device structured to transmit and receive data using at least two data rates; and
 - a master ultra-wideband transceiver structured to transmit and receive data using at least two data rates;
- wherein the master ultra-wideband transceiver determines a data rate capability of the ultra-wideband communication device.
24. The ultra-wideband communication network of claim 23, wherein the master ultra-wideband transceiver communicates the ultra-wideband communication device at the determined data rate capability.
25. The ultra-wideband communication network of claim 23, wherein the master ultra-wideband transceiver transmits a beacon signal containing information selected from a group consisting of: geographic location information, and a data communication rate capability.
26. The ultra-wideband communication network of claim 23, wherein each of the two data rates are selected from a group consisting of: one kilobit per second, five megabits per second, 25 megabits per second, 50 megabits per second, 100 megabits per second, 200 megabits per second, 400 megabits per second, 480 megabits per second, 500 megabits per second, and one gigabit per second.

27. The ultra-wideband communication network of claim 23, wherein the ultra-wideband communication device transmits a request to the a master ultra-wideband transceiver to communicate using only one of the data rates.

28. The ultra-wideband communication network of claim 23, wherein the a master ultra-wideband transceiver transmits a shut-down command signal to the ultra-wideband communication device.